

Role of short-range three-particle ...

S/056/62/043/004/041/061
3175/0186

the sum of the particle masses. The pair interaction can be neglected in the resonance range. The three-particle scattering amplitude in the resonance range is expressed in terms of the three-particle amplitude $a(C)$ and of the two radii r_1 and r_2 . The three-particle forces can also govern bound states of all the three particles. One of the pair amplitudes can preponderate also for $a_{12} \sim r_0$ and $a_{13} \sim r_0$. In this case the three-particle forces within the range $R_0 \lesssim r_0$ are important, when

$a(0) \gg r_0^2 a_{23}$. The width of resonance is of the order $\Delta E \sim a_{23}^2 \hbar^2 / m a(0)$.

The non-resonant pair interactions of the particle 1 with the particles 2 and 3 can be neglected also. In this case, the three-particle scattering amplitude can be expressed in terms of $a(C)$, a_{23} and a certain length $Q^2 \sim a_{23}^2 \ln^{-1}(a_{23}/r_0)^2$. The c.m.s. wave function of the particles in the range of the three-particle forces reads as

$\psi(\vec{R}) = A(k_{23}^2, E) \psi_0(C, C; \vec{R})$. The function $A(k_{23}^2, E)$ can be very complicated. When $a_{23} \gg r_0$, the energy dependence of the amplitude of

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the reaction $A + B \rightarrow A' + B' + C$ reads as

$$\langle A'B'C|AB \rangle_E = A(E) \langle A'B'C, AB \rangle_0.$$

(2).

The expressions

$$A(k_{12}^2, E) = \frac{1}{1 - ik_{12}a_{12}} \frac{1}{1 - a(0)f_1(E)};$$

(35) or

f

$$\begin{aligned} \mathcal{C}(E) = & [1 - a_d(0)(\eta(E) - \eta(-\alpha^2/2\mu_{12})) - \\ & - ia_d(0)\sqrt{2\mu_1}(\alpha^2/2\mu_{12} + E)^{1/2}]^{-1}. \end{aligned}$$

(42)

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B125/B186

have to be substituted for $\lambda(2)$ in (2).

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut (Leningrad
Physicotechnical Institute)

SUBMITTED: April 25, 1962

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L 10216-63

EST(d)/EST(m)/FCC(w)/BDS---

AFPTC/ASD--LJP(C)

ACCESSION NR: AP3000043

S/0056/63/044/005/1509/1517

AUTHOR: Danilov, G. S.; Lebedev, V. I.

TITLE: Calculation of the doublet neutron-deuteron scattering length in the theory of zero-range forces

SOURCE: Zhurnal eksper. i teoret. fiziki, v. 44, no. 5, 1963, 1509-1517

TOPIC TAGS: Neutron-deuteron scattering, zero-range theory, three-particle wave functions

ABSTRACT: A method is proposed for numerically solving the equations of Ter-Martirsoyan and Skorniyakov (Zhurnal eksperimental'noy i teoreticheskoy fiziki, vol. 31, 775, 1956) for the determination of the wave function of a three-particle system in the limiting case of zero range of the forces, for $S = 1/2$. The value obtained for the neutron-deuteron scattering range is 0.48 times $10 \sup -13$ centimeter and is in satisfactory agreement with the experimental value of Hurst and Alcock (Can. J. Phys. vol. 29, 36, 1951). The calculations are restricted to the case where the energy of the incident neutron

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ACCESSION NR: AP3000043

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is lower than the disintegration energy of the deuteron, so that only elastic scattering is possible. The equations derived in the paper were solved on an electronic computer. "The authors thank S. A. Frolova, L. F. Kananikhina, and L. S. Tint for participating in setting up the computational program, and T. Yu. Aandriyevskaya for carrying out some preliminary calculations. One of the authors (Danilov) is grateful also to K. A. Ter-Martirosyan and V. K. Vaytovatskiy for help in organizing the calculation and for constant interest in this work and comments." Orig. art. has: 57 formulas.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe, Akademii nauk SSSR (A. F. Ioffe Physicotechnical Inst. Acad. Sci. SSSR)

SUBMITTED: 12Oct63 DATE ACQ: 12Jun63 ENCL: 00

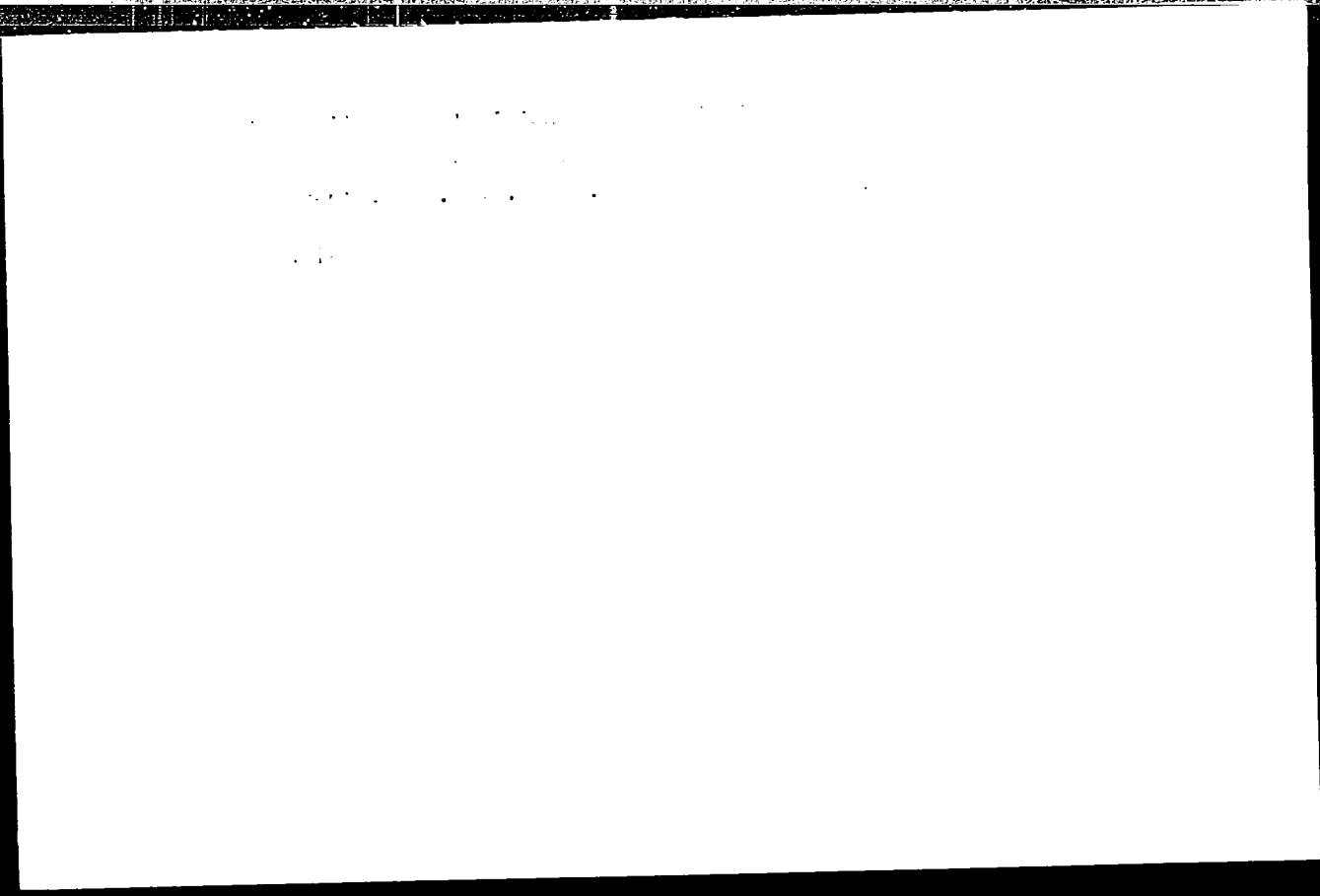
SUB CODE: PH NR REF SOV: 005 OTHER: 001

Card

2/2

"APPROVED FOR RELEASE: Wednesday, June 21, 2000

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CIA-RDP86-00513R001109

L 64748-55 EMT(m) DIAAP

ACCESSION NR: AP5016572

UR/0056/65/048/006/1776/1786-42

AUTHORS: ^{44,55} Azimov, Ya.I.; ^{44,55} Ansel'm, A.A.; ^{44,55} Gribov, V.N.; ³⁴ Danilov, G.S.; ^{44,55} Dyatlov, I.T.

TITLE: Three-particle unitarity conditions for complex angular momenta and the Mandelstam branch points

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 6, 1965, 1776-1786

TOPIC TAGS: moving pole method, quantum electrodynamics, elementary particle, particle interaction

^{19,44,55}
ABSTRACT: A study is made of the contribution of three-particle states to the unitarity condition for the partial elastic amplitude. The unitarity condition is continued to include complex values of the angular momentum j in such a way that no singularities of the amplitudes take place for large $\text{Re } j$. Special attention is paid to

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ACCESSION NR: AP5016572

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determining the unitarity condition for the three-particle amplitude in terms of the energy of the pair of the produced particles when j is complex. It turns out that the three-particle contribution should contain a sum not only over integer values of the projection m of the angular momentum, but also over complex values. This leads to the appearance of Mandelstam branch points in the j plane. The connection between the form of the unitarity condition proposed in the present article, with the form used in an earlier paper by V.N. Gribov et al. (Preprint, ITEP, 1964) is then discussed. The possibility of writing down the three-particle unitarity condition in the form of a contour integral with respect to m is considered. It is proposed to show in a future article (ZhETF v. 49, no. 8, 1965) that the three-particle amplitudes introduced in the present article can also be continued to complex j and have the required properties. "The authors thank I. Ya. Pomeranchuk^{W.S.} and K. A. Ter-Martirosyan^{W.S.} for useful discussions." Orig. art. has: 28 formulas and 10 figures.

Card 2/3

L 64748-65

ACCESSION NR: AP5016572

ASSOCIATION: Fiziko-tekhnicheskii institut im. A.F. Ioffe Akademii
nauk SSSR (Physicotechnical Institute, Academy of Sciences, SSSR)

SUBMITTED: 20 Jan 65

ENCL: 00

SUB CODE: NP, GP

NR REF SOV: 004

OTHER: 002

Card

3/3

L 65255-65 EWT(m)/I/2WA(m)-2

ACCESSION NR: AP5014203

UR/0386/65/001/002/0050/0054

AUTHOR: Azimov, Ya. I.; Anisovich, V. V.; Ansel'm, A. A.; Danilov, G. S.; Dyatlov, I. T.

TITLE: Electromagnetic meson decays in the quark model

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 2, 1965, 50-54

TOPIC TAGS: meson, strange particle, quark model

ABSTRACT: The hypothesis of SU(6) symmetry in strong interactions leads to a large number of relationships between the various matrix elements. In this paper it is pointed out that the use of SU(6) symmetry and the quark model in studying electromagnetic meson decays leads to predictions which may be experimentally verified in the near future. It is suggested that the magnetic moment of a quark may be independent of the type of interaction which binds quarks in particles, as should be the case in the non-relativistic model with weakly bound quarks. "The authors are grateful to V. M. Shekhter for useful consultation." Orig. art. has: 1 table, 2 formulas.

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L 65255-65

ACCESSION NR: AP5014203

3

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe (Physicotechnical Institute)

SUBMITTED: 18Mar65

ENCL: 00

SUB CODE: NP

NO REF SOV: 002

OTHER: 005

Card 2/2

AZIMOV, Ya.I.; ANISOVICH, V.V.; ANDELMAN, A.A.; LAMEROV, I.S.; LYATLOV, I.T.

On certain mass formulae in a quark model. Izv. fiz. 2
no.3:523-584 1965. (MIRA 18:4)

1. Fiziko-tekhnicheskii institut im. A.F. Ioffe AN SSSR.

L 5349-66 EWT(m)/T/EWA(m)-2

ACCESSION NR: AP5021120

UR/0056/65/049/002/0549/0571

AUTHOR: Azimov, Ya. I.; Ansel'm, A. A.; Gribov, V. N.; Danilov, G. S.; Dyatlov, I. T.

TITLE: Three-particle partial amplitudes and the unitarity conditions for complex values of the angular momentum

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 2, 1965, 549-571

TOPIC TAGS: particle interaction, scattering amplitude, moving pole method, analyticity

ABSTRACT: This is a continuation of an earlier paper (ZhETF v. 48, 1776, 1965) dealing with the mechanism of the occurrence of Mandelstam branch points on the basis of many-particle unitarity conditions for complex angular momentum (j). The present article considers the possibility of continuing the partial amplitudes for the transformation of two particles into the domain of complex j , and investigates their properties for the simplest types of Feynman diagrams. A general method is described first for analytic continuation of the amplitudes in j when the helicity (m) assumes integer values. It is shown that the concrete character of the asymp-

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L 5349-66

ACCESSION NR: AP5021120

otic behavior of the amplitudes depends on the values of the pair energies of the produced particles. The unitarity conditions for the amplitudes are then investigated with respect to the pair energies. The exact form of the three-particle contribution to the unitarity conditions is finally obtained for complex j and for several simple Feynman diagrams, and it is shown that the construction of the unitarity conditions is equivalent to the calculation of the Mandelstam spectral functions of the corresponding diagrams. Orig. art. has: 19 figures and 48 formulas.

ASSOCIATION: none

SUBMITTED: 04Feb65

ENCL: 00

SUB CODE: GP, NP

NR REF SOV: 005

OTHER: 003

Cord 2/2 *hcl*

AZIMOV, Ya.I.; ANISOVICH, V.V.; ANSEL'M, A.A.; DANILIN, V.I.; DYAKOV, I.I.

Possible classification of elementary particles in the quartet
model. Pis'ma v red. Zhur. eksper. i teoret. fiz. 2:11-13
Ag '65. (MIRA 14:12)

1. Fiziko-tekhnicheskiy institut imeni Ioffe AN SSSR. Submitted
June 3, 1965.

L 23016-66 EWT(m)/T

ACC NR: AP6014827

SOURCE CODE: UR/0367/65/001/006/1121/1126

AUTHOR: Azimov, Ya. I.--Azimov, J. I.; Gribov, V. N.; Danilov, G. S.; Dyatlov, I. T.

ORG: Leningrad Physicotechnical Institute im. A. F. Ioffe (Leningradskiy fiziko-
tekhnicheskiy institut)

TITLE: Model of the three-particle unitary state for complex moments

SOURCE: Yadernaya fizika, v. 1, no. 6, 1965, 1121-1126

TOPIC TAGS: particle physics, nuclear model

ABSTRACT: An extension of three-particle amplitudes to complex moments is constructed on the basis of the non-relativistic Skorniyakov - Ter-Martirosyan equation describing the contact par-interaction of three identical particles (ZhETF, 31, 775, 1956). The exact three-particle unitary state is written for such a model. For arbitrary j this state contains additional terms in which the integration is performed with respect to non-physical values of the pairing energies. The authors thank A. A. Angel'ko for useful discussions. Orig. art. has: 6 figures and 12 formulas. [Based on authors' Eng. abst.] [JPRS]

SUB CODE: 20 / SUBM DATE: 20Jan65 / ORIG REF: 004

Card 1/1 *pla*

ALEKSEYEV, Ye.T.; APENCHENKO, S.S.; BASOV, A.P.; BAUSIN, A.F.; BERSHADSKIY, L.S.;
VELLER, M.A.; GINZBURG L.N.; GUSEV, S.A.; DANILOV, G.V.; DOLGIKH, M.S.;
DRUZHININ, N.N.; YEFIMOV, V.S.; ZAVADSKIY, N.V.; IVASHECHKIN, N.V.;
KARAKIN, P.P.; KUZHMAN, G.I.; LOBANOV, S.P.; MERKULOV, Ya.V.; NIKODIMOV,
P.I.; PANKRATOV, N.S.; PYATAKOV, L.V.; RODICHEV, A.F.; SMIRNOV, M.S.;
STRUKOV, B.I.; SAVOCHKIN, S.M.; SAMSONOV, N.N.; SINITSYN, N.A.; SOKOLOV,
A.A.; SOLOPOV, S.G.; CHIRLYSHEV, S.G.; SHCHEPKIN, A.Ye.

Fedor Nikolaevich Krylov; obituary. Torf. prom. 35 no.6:32 '58.
(MIRA 11:10)
(Krylov, Fedor Nikolaevich, 1903-1958)

DANILOV, G. Ye.

Cand Med Sci - (diss) "Effect of caffeine on the reflex activity of the medulla spinalis." Izhevsk, 1961. 15 pp; (Sverdlovsk State Medical Inst); 300 copies; free; (KL, 5-61 sup, 202)

DANILOV, G. Ye.

Effect of caffeine on spinal reflexes. Fiziol. zhur. 46 no.10:1243-1249 0 '60. (MIRA 13:11)

1. Kafedra fiziologii Meditsinskogo instituta, Izhevsk.
(SPINAL CORD) (CAFFEINE)

DAVUTOV, I.Ye., VIROVA, I.N., studentkiy fiziol. fak., studentka,
IOLENOVA, E.A., studentka

Importance of the original functional state of the central
nervous system in the change of the intraocular pressure during
chronic painful irritation. Trudy Izhev.gos.med.inst. 21 44-47 '64.
Izhevsk 1964

1. Katedra normal'noy fiziologii (zav. - prof. E.A. Iosadskiy),
Izhevskoye meditsinskoye instituta.

DAVILOV, I.

Practical field compasses.

P. 322, (Sotsialistlik Põllumajandus) Vol. 14, no. 7, July 1957, Tallinn, Estonia

SO: Monthly Index of East European Accessions (EEA) V.1.1, N. 11 November 1957

USSR / Soil Science. Cultivation. Improvement. Erosion.

J-4

Abs Jour : Ref Zhur - Biologiya, No 16, 1958, No. 72732

Author : Danilov, I.

Inst : Moscow Agricultural Academy Imeni K. A. Timiryazov

Title : Assimilation of Virgin Dark-Chestnut Soils of
Akmolinskaya Oblast Kazakh SSR

Orig Pub : Sb. stud. nauchno-issled. rabot. Mosk. s-kh. akad.
im. K. A. Timiryazeva, 1958, vyp. 8, 202-209

Abstract : No abstract given

Card 1/1

DANILOV, I.

New method for facing trench silos. Sel'.stroitel'no no.6:10
Je '55. (MLRA 8:10)

1. Starshiy inzhener Voronezhskogo oblastnogo upravleniya po
stroitel'stvu v kolkhosakh
(Reinforced concrete construction) (Silos)

DAN. LCV, 1., inzh.

Changing a diesel generator plant on "Isots"-type floating cranes.

Rech. transp. 22.10.1971. (MIRA 16:9)

Floating cranes—Maintenance and repair)

DANILOV, I., inzh.

Modernizing the chlorinating equipment on passenger ships.
Rech.transp. 23 no.9:55-56 S 104. (MIRA 19:1)

YAMPOL'SKIY, Anatoliy Mikhaylovich; IL'IN, Vitaliy Alekseyevich;
DANILOV, I.A., inzh., retsenzent, CHERKEZ, M.B., kand. tekhn.
nauk, red.; ONISHCHENKO, R.N., red. izd-va; SHCHETININA, L.V.,
tekhn. red.

[Brief handbook of electroplating and electroforming] Kratkii
spravochnik gal'vanotekhnika. Moskva: Mashgiz, 1962. 244 p.
(MIRA 15:7)

(Electroplating - Handbooks, manuals, etc.)

DANILOV, I. A., SHLOMA, P. I. and SAMOKHESHEV, A. F.

"The System of Observation of Servicemen with a Discharge Year 1965 in Their First Year of Service".

Voenno-Meditsinskoye Zhurnal, No. 4, 1965.

L 15247-65 AEDC(b)/RAEM(a)/RAEM(c)

ACCESSION NR: AP5001433

S/0091/64/000/009/0045/0046

AUTHOR: Danilov, I. A. (Engineer)

TITLE: Conference on minor mechanization problems in repairing electric transmission lines

SOURCE: Energetik, no. 9, 1964, 45-46

TOPIC TAGS: transmission line, electric power engineering, electrical distribution system

Abstract: The Conference was held on June 10-11 in Yaroslavl' with representatives of the Main Central Power System and the Yaroslavl Power System. Reports were given by Engineers GRACHEV, SMIRNOV, BOGOLYUBSKIY, SHCHIGAL and VISNAPU and by Foreman KLIMOV on repair mechanization problems. There was an exhibition of equipment and means for minor mechanization of repair of electric transmission lines.

ASSOCIATION: none

Card 1/2

L 15247-65
ACCESSION NR: AP5001433

SUBMITTED: 00

ENCL: 00

SUB CODE: EE

NO REF SOV: 000

OTHER: 000

JPRS

Card 2/2

DANILOV, I.A. (g. Kovrov); CHERNOVA, L.A.

On the boiler-water system and chemical control in boilers. Energetik
5 no.4:35-36 Ap '57. (MIRA 10:6)

(Boilers)

SEREBRYAKOV, L.V., DANILOV, I.A., DOBRUSIN, B.N. [deceased]

Role of the environment in the spread of dysentery in organized groups.
Azerb.med.shur. no.7:117-120 J1 '58 (MIRA 11:8)
(DYSENTERY)

DANILOV, I.A., kapitan meditsinskoy sluzhby

Treatment of trichocephaliasis. Voen.-med.shur. no.4:83 Ap '60.
Voен.-med.shur. no.4:83 Ap '60. (MIRA 14:1)
(TRICHOCEPHALIASIS)

ANILOV, I. A. (Captain of the Medical Service)

"Treatment of Patients with Essential Hypertension with the Use of Rauvasin and
Residin"

Voyenno-Meditsinskiy Zhurnal, No. 10, October 1961

- DANILOV, I.A.

Ascorbic acid as a test breakfast in the fractional analysis of
gastric juice. Lab. delo 7 no.1:29-31 Ja '61. (MIRA 14:1)
(GASTRIC JUICE) (ASCORBIC ACID)

DANILOV, I.A.

Dependence of the clinical course of dysentery on the form of
causative agent. Azerb. med. zhur. no. 5:30-37 My '61.
(MIRA 14:4)

(DYSENTERY)

DANILOV, I.A., kapitan med.sluzhby

Treatment of hypertension with rauvazan and rezidin. Voen.-med.
zhur. no.10:88-89 0 '61. (MIRA 15:5)
(HYPERTENSION) (RAUWOLFIA)

DANILOV, I.A., insh.

Improving the water resistance of shipbuilding timber. Sudostroenie
30 no.8:36-38 Ag '64. (MIRA 18:7)

...; LOKAL, V.I., kum. 1-111. Mosk. 1911, 1-11,
... 1-111, 1-11, 1-111.

Industrial tests of a cooling unit with aluminum tubes
designed by the All-Union Scientific Research Institute
for Metallurgical Machines. Mosk. s'a. 36 11. 1-11-11 3
1-11.

USSR / Gases.

D-7

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9071

Author : Danilov, I.B.

Inst : Institute of Physical Problems, Academy of Sciences USSR

Title : Pump With Liquid Piston for Transferring Gas.

Orig Pub : Pribery i tekhn. eksperimenta, 1956, No 1, 93-95

Abstract : A construction is proposed for a pump with a mercury piston, intended for transferring rare and valuable gases in the laboratory and plant practice. The pump has the following properties: (1) complete hermeticity of the working space eliminates the possibility of leakage of the pumped gas to the atmosphere; (2) a considerable vacuum is produced in the intake line for maximum possible complete evacuation of the gas (the residual pressure is less than 1 mm mercury); (3) it is possible to compress the gas in the compression line to 1 -- 2 atmospheres.

Card : 1/1

DANILOV, I. B.

301-PM

ZHURNAL TEKHNIЧЕСКОИ ФИЗИКИ

Journal of Technical Physics

Vol XXVI, No. 5, May, 1956 p. 1046-7

DANILOV, I. B.: On Selecting Optimum Conditions of Operation of Helium Liquefying Equipment

Cascade type liquefier with throttling of the helium which is first cooled by means of liquid hydrogen boiling in vacuum (throttling temperature 16°K). Optimum performance is obtained at a throttle pressure of the helium equalling 25 atm. and not 35 atm, as would follow from the entropy diagram of Zelmanov.

PM
RM

DANILOV, I. B.

2

The choice of optimum conditions when working with a
helium liquefier. I. B. Danilov. *Soviet Phys. Tech.*
Phys. 1, 1023-6 (1987) (English translation). See C.A. 50,
14270g.
B. J. L.
B. M. R.

Mark
Chen

fra
ist

AUTHOR: Danilov, I. B., Candidate of Technical Sciences

SOV/67-58-4-3/29

TITLE: Device for the Liquefaction of Helium GS-2 (Ustanovka dlya ozhizheniya geliya GS-2)

PERIODICAL: Kislород, 1958, Nr 4, pp. 20-26 (USSR)

ABSTRACT: In the introduction the history of the application of liquefied helium for purposes of cooling in the USSR and in the USA is told, where helium is being widely used for this purpose. On the basis of a schematical drawing the aforementioned device GS-2 is described. It consists of a helium compressor, container for pure helium, a block for the purification of helium from its content of fat, a block for the purification of technical helium, cylinders containing technical helium, helium liquefier, container for liquefied helium, cylinders containing pure helium, a vacuum pump for the regeneration of adsorbents in the purifying block, a container which conveys helium back from the laboratory after having been used, a pump for pressing the helium to be purified through the purifying block, a gas analyzer for the determination of the quantity of air contained in the helium, a hydrogen compressor, a hydrogen container, a block for the removal of fat.

Card 1/2

Device for the Liquefaction of Helium GS-1

SOV/67-58-4-3/29

from the hydrogen, a vacuum pump for hydrogen, a container for liquefied hydrogen, cylinders containing technical hydrogen, a block for the purification of technical hydrogen, a vacuum pump for the regeneration of the purifying adsorbents for hydrogen, cylinders for pure hydrogen, a container for liquid nitrogen and a vacuum pump for emptying the container for nitrogen. The chapter dealing with machines and apparatus describes the individual components of the device, especially the helium liquefier which is shown by a schematic drawing. Moreover, the mode of operation of the device and the characteristic features of its functioning are described. There are 2 figures and 6 references, 1 of which are Soviet.

Card 2/2

1. Helium (Liquid)--Preparation 2. Industrial equipment

MALKOV, M.P.; ZELDOVIC, A.G. [Zel'dovich, A.G.]; FRADKOV, A.B.; DANILOV,
I.B.; ZOCH, O. [translator]

Industrial separation of deuterium by low-temperature distillation.
Jaderna energie 4 no.11:344-351 N '58.

DANILOV, I.B.

PLAZ. SOO EXPLANTIOS 90V/213

International Conference on the Peaceful Use of Atomic Energy. 2nd, Geneva, 1958

Radioisotopes: polucheniye i primeneniye izotopov (Reports of Soviet Scientists: Production and Application of Isotopes). Moscow, Atomizdat, 1959. 308 p. (Series "Iz. Trudy", vol. 6) 8,000 copies printed.

Eds. (title page) G.V. Kurdyumov, Academician, and I.I. Lavrov, Corresponding Member, USSR Academy of Sciences; Ed. (title page) I.D. Anisimov; Ed. (title page) I.D. Anisimov.

PURPOSE: This book is intended for scientists, engineers, physicists, and biologists engaged in the production and application of atomic energy in peaceful uses; for professors and graduate and non-graduate students of higher technical schools where nuclear science is taught; and for the general public interested in atomic science and technology.

CONTENTS: This is volume 6 of a 3-volume set of reports delivered by Soviet scientists at the Second International Conference on the Peaceful Use of Atomic Energy held in Geneva from September 1 to 14, 1958. Volume 6 contains 32 reports on: 1) modern methods for the production of radioisotopes; 2) active isotopes and their labeled compounds; 3) radioisotopes in the field of chemistry, physics, biology, medicine, and agriculture; and 4) technology of radioisotopes. Volume 6 was edited by: I.I. Lavrov, Corresponding Member of the USSR Academy of Sciences, and G.V. Kurdyumov, Academician of the USSR Academy of Sciences. See Sov. X-2 for titles of volume of the set. References appear at the end of the articles.

1. Kurdyumov, G.V. and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

2. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

3. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

4. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

5. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

6. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

7. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

8. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

9. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

10. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

11. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

12. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

13. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

14. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

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16. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

17. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

18. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

19. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

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23. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

24. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

25. Kurdyumov, G.V., A.I. Il'in, and I.D. Anisimov. Means of Development of Atomic Energy in the Radiochemical Laboratories of the USSR. (Report No. 213)

14(1)

SOV/67-59-6-1/26

AUTHORS:

Malkov, M. P., Doctor of Technical Sciences, Zel'dovich,
A. G., Doctor of Technical Sciences, Fradkov, A. B., Candidate
of Technical Sciences, Danilov, I. B., Candidate of Technical
Sciences

TITLE:

Separation of ¹⁹Deuterium From Hydrogen by Means of the Low-
temperature Distillation Method

PERIODICAL:

Kislород, 1959, Nr 6, pp 1 - 13 (USSR)

ABSTRACT:

The method mentioned in above title proved to be the most suitable and economical one for the production and preparation of deuterium. It was worked out and first applied on a large industrial scale in the USSR. In the present paper, a survey of the present state and problems connected with it in the USSR and abroad is given on the basis of published data. The main schemes of deuterium separation plants are represented and described in figures 1 and 2. The following problems are dealt with: rectification, heat emission, heat insulation, purification of hydrogen from impurities, and realization of the method in industry. There are 15 figures and 27 references, 8 of which are Soviet. ✓

Card 1/1

PHASE I BOOK EXPLOITATION SOV/5634

Malkov, M. P., A. G. Zel'dovich, A. B. Fradkov, and I. B. Danilov

Vydeleniye deuteriya iz vodoroda metodom glubokogo okhlazhdeniya
(Separation of Deuterium From Hydrogen by the Method of Deep
Freezing) Moscow, Gosatomizdat, 1961. 150 p. Errata slip
inserted. 4,000 copies printed.

Ed.: N. A. Korobtsova; Tech. Ed.: Ye I. Mazel'.

PURPOSE : This book is intended for scientists working on problems
of heavy water production, scientific and technical personnel
working on deep freezing problems and separation of isotopes,
instructors and advanced students.

COVERAGE The book deals with the physical and technical principles
of deuterium separation from hydrogen by the deep freezing method.
The specificity of liquid hydrogen rectification is described along
with methods for the production of cold at the temperature level
of liquid hydrogen. The physicochemical constants of hydrogen
isotopes are presented in a form that is easy to use. The material

Card 1/5

Separation of Deuterium (Cont.)

SOV/5634

is based on works of the individual authors, as well as on works of Soviet and non-Soviet scientists. The tabular data in the appendix are based on the works of non-Soviet scientists. No personalities are mentioned. There are 134 references: 79 English, 35 Soviet, 15 German, 3 French, 1 Czech, and 1 Polish.

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Separation of Deuterium (Cont.)

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Separation of Deuterium (Cont.)	SOV/5634	
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9-29-61

21547

S/057/61, 031, 004/013, 018
B125/B202

11.3120 (also 3416, 4216)

AUTHORS: Kapitsa, P. L. and Danilov, I. B.

TITLE: Expansion engine for the liquefaction of helium

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 4, 1961, 486-494

TEXT: The authors describe the new expansion engine which has been developed at the Institut fizicheskikh problem (Institute for Physical Problems). This engine was used for the construction of two types of aggregates: one with a yield of 5 l/sec operating with previous cooling by liquid nitrogen and the second with a yield of 14 to 18 l/sec with cascade-type operation and two helium expansion engines which required no other coolants. The design principles of the expansion engine are similar to those which have been suggested already earlier (P. Kapitsa, Proc. Roy. Soc., A147, 189, 1934; P. L. Kapitsa, UFN, XVI, 2, 145, 1936). The expansion cylinder and the piston operate at low temperatures. Fig. shows the total view of the engine. The most important parts of this engine are the cylinder and the piston. Because of the "gas lubrication" cylinder and piston must maintain their exact cylindrical form also at

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S/057/61/031/004/015/015
B125/B202

Expansion engine for the ...

very low temperatures. This construction, however, is very sensitive to impurities. In the recent constructions, the piston is coated with plastic material and the cylinder is chromium-plated. In the first expansion engine the expansion process was reduced with respect to the inverse motion, i.e., the piston was "shot out". Because of its irregular operation this mechanism was replaced by a cam gear. Owing to the use of plastic material the duration of expansion can no longer be reduced. The gas is distributed in the expansion engine by special valves. In practice, the operation of the engine is regulated according to the indicator diagram. Fig. 3 shows three such indicator diagrams. In the helium liquefaction machines described the purity of the gas is of decisive importance. Table 1 gives some characteristic data on the expansion engine with a power of 5-6 l per hr with previous nitrogen cooling. Fig. 4 shows the principle of design of the liquefaction machine. The pure gaseous helium passes from the gas holder 1 into the piston compressor 2 and is compressed until a pressure of about 25 atm is attained. It then passes from the compressor into the liquefaction aggregate 3. In the first section of the heat exchanger it is cooled by a helium countercurrent and by gaseous nitrogen. In the second section of

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Expansion engine for the ...

3, 057/01, 011, 014/013/018
B125/1252

the heat exchanger the helium is then cooled to 27°K. At this temperature 65% of compressed helium are introduced into the expansion engine and cooled to 12°K. The remaining part of liquid helium is then cooled in the third and fourth section of the heat exchanger. It is expanded in the throttle valve and partly liquefied, and finally collected in a Dewar vessel 4. Fig. 5 shows the design of this liquefaction machine, and Table 2 contains its most important parameters. Such apparatus are now being industrially produced. Besides this liquefaction machine, the authors also developed a cooling device with two expansion engines connected in cascade. The following designers are mentioned: Yu. Yu. Lur'ye, K. I. Skorlupin, V. Ye. Keylin, mechanic A. M. Goncharov, S. A. Mrysh, V. A. Gdovskiy, A. V. Melekhin and F. N. Boyev, S. A. Yakovlev, who are in charge of instrument maintenance. There are 6 figures, 2 tables, and 8 references. 3 Soviet-bloc and 5 non-Soviet-bloc. The most recent reference to English-language publications reads as follows: P. Fortescue, W. B. Hall, Journ. Brit. Nuclear Energy Conf., 3, 1, 83, 1957.

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21547

S/057/61/031/004/013/018
B125/B002

Expansion engine for the ...

ASSOCIATION. Institut fizicheskikh problem im. S. I. Vavilova Moskva
(Institute for Physical Problems imeni S. I. Vavilov,
Moscow)

SUBMITTED. August 20, 1960

Legend to Fig. 1: Principle of design of the expansion engine.

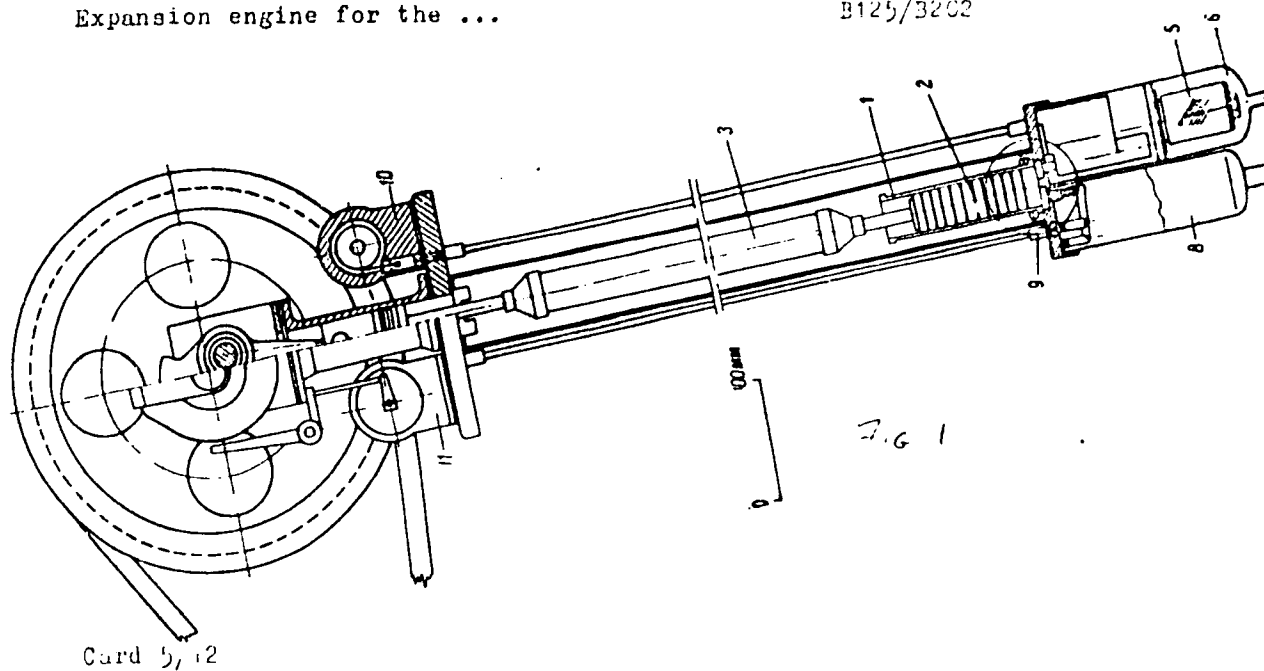
1 - cylinder, 2 - piston, 3 - rod, 4 - inlet valve, 5 - filter,
6 - inlet receiver, 7 - outlet valve, 8 - outlet receiver, 9 - compensators,
10 - stuffing box of the inlet valve, 11 - stuffing box of the outlet
valve, 12 - crosshead piston, 13 - condensation cups (uplotnitel'nyye
manzhety), 14 - crankshaft, 15 and 16 - cam for the supply of the outlet
valve and the inlet valve, 17 - generator for the indicator, 18 - tensometer

Card 4/12

21547

S/057/61/031/004/013/018
B125/3202

Expansion engine for the ...

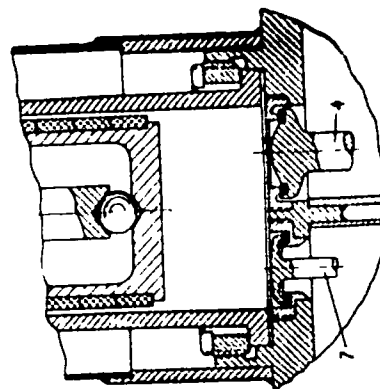
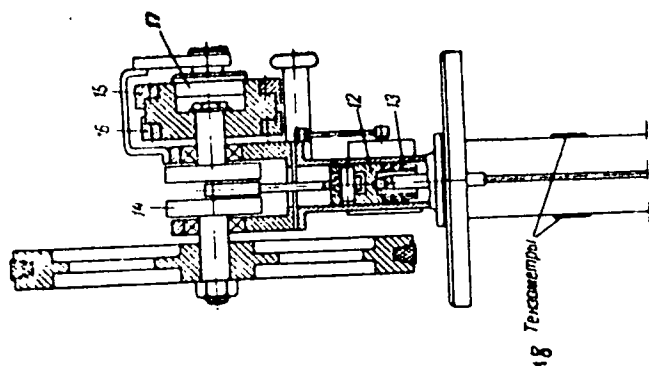


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B125/B202

Expansion engine for the ...

Fig 1

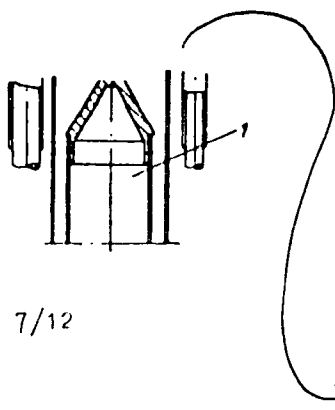


Card 6/12

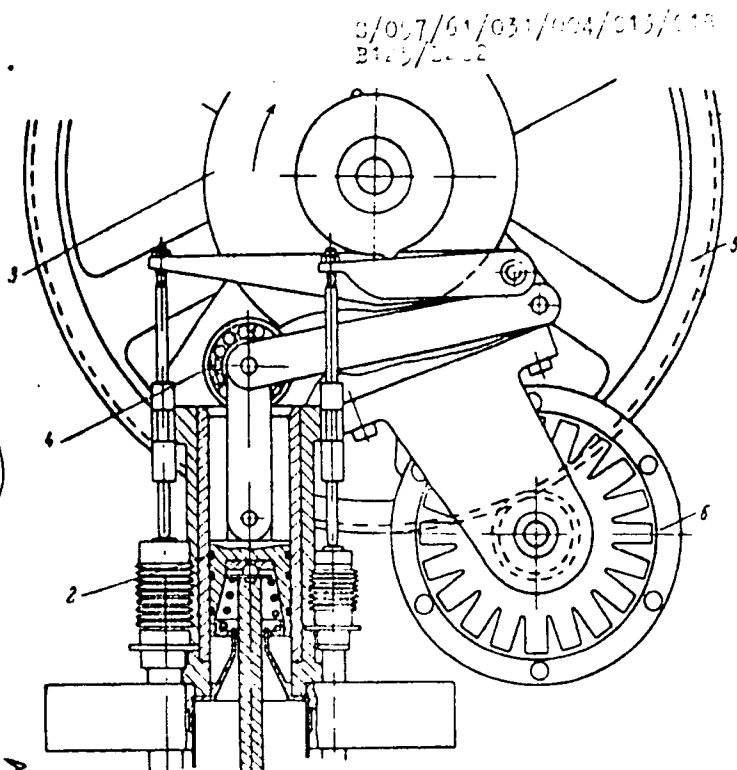
Expansion engine for the ...

Legend to Fig. 2:

- 1 - piston rod,
- 2 - crosshead
- piston, 3 - camshaft
- disc, 4 - roll,
- 5 - flywheel with
- gear rim, 6 - elec-
- trical generator
- brake



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3/057/01/031, 004/013/018
B. 22, B. 23

Expansion engine for the ...

Legend to Fig. 3: indicator diagrams of the expansion engine:
a - early closing of the outlet valve, b - late closing of the outlet valve, c - diagrams of a normally operating expansion engine.

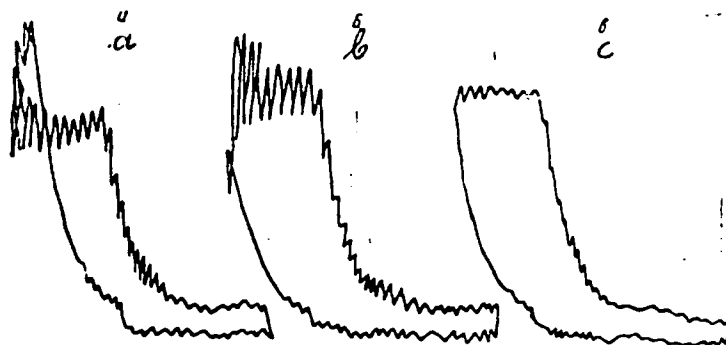


Рис. 3. Индикаторные диаграммы детандера.

a — раннее закрытие выпускного клапана, б — позднее закрытие выпускного клапана, в — диаграмма нормально работающего детандера.

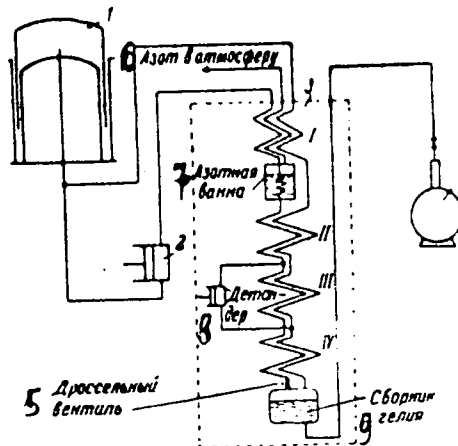
Card 8/12

21547

5/057/01/001/0.4/013/018
B125/3252

Expansion engine for the ...

Legend to Fig. 4: principle of design of the one-step liquefaction of helium with previous cooling by liquid nitrogen. 1 - gas holder, 2 - compressor, 3 - liquefaction apparatus, 4 - Dewar vessel for helium, 5 - throttle valve, 6 - nitrogen into the atmosphere, 7 - nitrogen bath, 8 - expansion engine, 9 - helium vessel



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Expansion engine for the ...

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S/057/01/031/004/013/018
B125/2202

Legend to Fig. 5: principle
of design of the helium
liquefaction apparatus.

1 - supporting plate,
2 - Dewar vessel of the
liquefaction apparatus,
3 - shield, 4 - expansion
engine, 5 - nitrogen
bath, 6, 7, 8, 9 - heat
exchangers, 9 - throttle
valve, 11 - collector for
liquid helium, 12 - over-
flow valve.

(7.6 5 on Card 12/12)

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21547

3/057/01/051/004/013/018
3125/3002

Expansion engine for the ...

Параметр	Величина
Диаметр поршня	35 мм
Ход поршня	35 мм
Число оборотов в минуту	400
Давление	
на входе	20 + 23 ат
на выходе	1.4 ат
Температура	
на входе	27°K
на выходе	12°K
Количество перерабатываемого газа	30 + 50 мм³/час
Коэффициент полезного действия (η) ¹	0.8

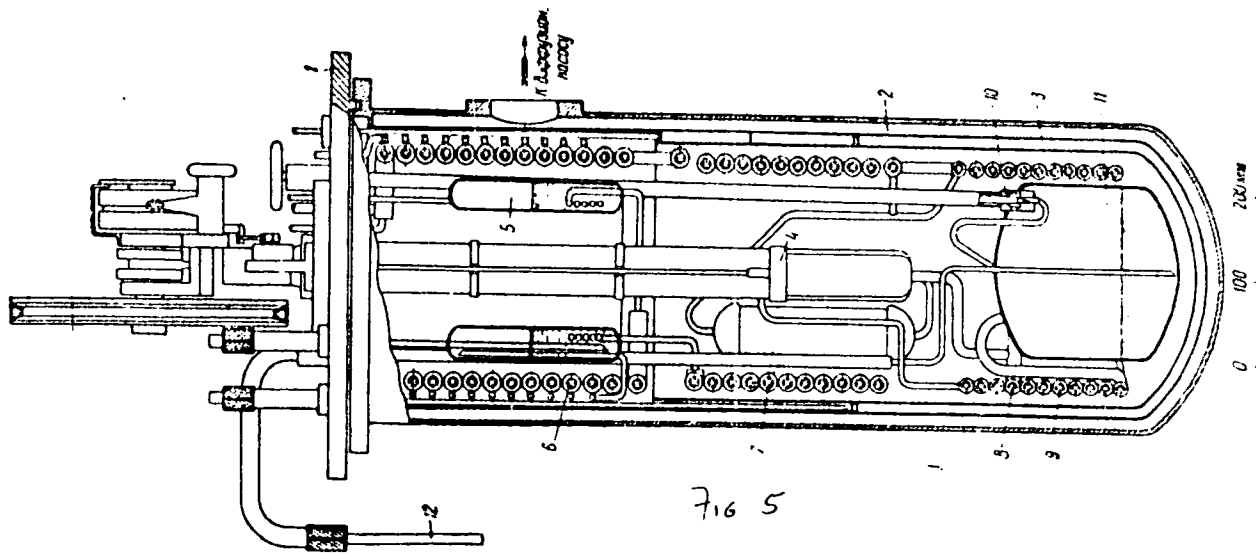
Table 1

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Expansion engine for the ...

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3/057/61/11/004/013/019
B125/B202



Card 12/12

S/120/62/000/001/047/061
EC39/E485

AUTHORS: Danilov, I.B., Andrianov, V.P.

TITLE: An electrical indicator for the tuning and testing of
working piston engines

PERIODICAL: Priory i tekhnika eksperimenta, no.1, 1962, 183-185

TEXT: The apparatus described permits the continuous observation of the indicator diagram of a working piston engine on the screen of an oscillograph, without the addition of a probe to the working volume of the cylinder. Instead of measuring the pressure in the working volume directly, the distortion of a part of the engine was measured, by means of a resistance strain gauge, at a point where the deformation was proportional to the pressure in the working volume. In this particular case, a stainless steel tube which strengthened the cylinder and valve case was used. The strain gauge consisted of a grid of constantan wire, 40 mm long with a 0.5 mm pitch mounted on a paper base, and had a total resistance of 300 ohms. The gauge was fixed on to the stainless steel tube by means of adhesive 192-T and its sensitivity, measured by applying a static pressure Card 1/2

An electrical indicator ...

S/120/62/000/061/047/061
EO39/E485

to the system, was shown to be $0.3 \Omega/\text{kg}$. The influence of transverse oscillations of the tube was reduced by using two strain gauges mounted on opposite sides of the tube. The signal from the strain gauges was amplified and displayed on an ЭО-7 (EO-7) oscillograph. As it was necessary to amplify very low frequencies, the frequency characteristic of the vertical amplifier was modified. Taking the amplification coefficient at 3 to 10 c/s as unity, then at 0.3 c/s it was 0.7. The horizontal time base was taken from a generator mounted on the crankshaft of the engine. As the engine worked at speeds of about 300 rpm, the cathode ray tube of the oscilloscope was changed for one with a long afterglow screen. Photographs of the indicator diagrams obtained are included in the paper. The method was found to be reliable and convenient. Acknowledgments are expressed to P.L.Kapitsa for the idea of the electric indicator and to L.N.Shteyngayz for the construction of the generator. There are 4 figures and 1 table.

ASSOCIATION: Institut fizicheskikh problem AN SSSR
(The Institute of Physical Problems AS USSR)
Card 2/2 SUBMITTED: June 1, 1961

3/10/76, 122/004/011/017
2131, 2102

11 2120

AUTHORS: Kapitsa, P. L., and Danilov, I. P.

TITLE: Cascade expansion condenser for helium without additional coolants

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 37, no. 4, 1969, 457-460

TEXT: A description is given of the laboratory system -" (d-1), with two cascade-connected pressure reducers. The condenser capacity is 10 l/h (with a 2 SA-30 (2 SA-30) "Borets" compressor for 350 m³/hr); starting period of the system, about 2 hrs; power consumption for producing one liter of liquid helium, 2.3 kw-hr; gas temperature behind the pressure reducer of the second stage, 11-12°K, and behind that of the first stage, 65°K. Helium gas is compressed to 20-25 atm and divided into three streams in the condenser: 35% is conveyed to the pressure reducer of the first stage with 125-130°K, 35% is conveyed to the pressure reducer of the second stage with 28°K, and 30% is allowed to expand in the last section of the heat-exchanger and filled into a container which is

Card 1/2

Cascade expansion condenser for ...

0,057/0,012/0,04/0,11/0,17
2177/2172

insulated by a vacuum bottle casing. The hydraulic resistance of the heat exchanger is 0.07 atm for the reflux. The helium condenser was designed and built with the assistance of the designers Ya. Yu. Lur'ye and A. I. Skorlupin, as well as the mechanics A. V. Golosin, P. A. Boyev, V. A. Gdovskiy, A. M. Goncharov, and G. A. Yakovlev. There are 4 figures.

ASSOCIATION: Institut fizicheskikh problem AN SSSR, Moscow
(Institute of Physical Problems AN USSR, Moscow)

SUBMITTED: July 14, 1961

Card 2/2

U.S. 170/6, 100, 109 001, 010
 5108/5104

25 1200

AUTHOR: Lamil V. I. D., Koylin, V. D.

TITLE: Heat transfer and hydraulic resistance of tubes with spiral ridges in a longitudinal flow

PERIODICAL: Inzhenerno-fizicheskii zhurnal, v. 1, no. 4, 1961, 1-8

In the paper, heat transfer tests were made with heat exchanger tubes consisting of an outer brass tube and either one inner coaxial copper tube with spiral fins or three of these placed symmetrically about the outer tube's axis. Experiments were made with nitrogen, helium, and water. The gas from a compressor was led through the inner tubes, then heated electrically and returned by counterflow through the space between the inner and outer tubes. Temperature at the outlet was measured by mercury thermometers. The hydraulic resistance of the space between the inner and outer tubes was measured by a mercury differential pressure gauge. The Reynolds numbers were between 10^4 and 10^5 . The measured data on the heat transfer together with data from publications (Anders, Kitz, Chem. Eng. Progress, 46, no. 10, 1950; Fortescu, Bull. Journ. Chim. 1, 1961).

Heat transfer in air ducts...

1961

Research in Nuclear Energy... the form of $h = \frac{\lambda}{d} \cdot \frac{P}{\Delta T}$... λ is the coefficient of thermal conductivity in the pipe... the distance to flow is about 1... center using two tubes... with only one tube. This value is consistent with... aerodynamic theory of heat transfer. There are 2 figures.

ASSOCIATION: Institut für Atomphysik... Institut für physikalische Probleme...

MILITARY: May, 28, 1962

Card 1/2

L 721-65 Ew(d)/EWI(.)/EPA(s)-2/E-T(m)/EWP(w)/EPF(c)/EEC(k)-2/EPF(n)-2/ENG(v)/
 EWA(c)/EPR/EPA(w)-2/T/EWP(c)/EWG(c)/EWG(h) Pc-4/P2b-10/Ps-5/Pr-4/Ps-4/Pt-7/Pc-4
 IJP(c) JN/WN/JW/KM
 ACCESSION NR AMLO1624 BOOK EXPLOITATION S/

Malkov, Mikhail Petrovich (Professor); Danilov, I. B.; Zel'dovich, A. G.;
Fradkov, A. B.

Handbook on the physical and technical bases of deep cold (Spravochnik po fiziko-
 tekhnicheskim osnovam glubokogo okhazhdeniya), Moscow, Gosenergoizdat, 1961,
 416 p., illus., biblis., diagrs., index. Errata slip inserted. 14,000 copies
 printed.

TOPIC TAGS: cryogenic engineering, cryogenic equipment, thermodynamics, carbon
 steel, low alloy steel, austenitic steel, nonferrous metal, weldment, insulation,
 hydraulics, gas

PURPOSE AND COVERAGE: This handbook gives the basic physical-chemical constants,
 thermodynamic and thermal engineering relationships, and production indicators
 required for calculating and designing deep cold equipment and in research in
 low-temperature physics. The book describes typical schemes of gas liquefaction
 and separation of gaseous mixtures. The theory of the processes is included.
 The handbook is intended as an aid for engineers and researchers; it can also
 serve as a textbook for students in advanced courses specializing in low-
 temperature physics and engineering.

Card 1/3

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SUBMITTED: 02Sep63

SUB CODE: 0P

NO REF SOV: 543

OTHER: 999

Card

3/3

S/120/63/000/001/058/072
E194/E455

AUTHOR: Danilov, I.B.

TITLE: A textolite piston for a helium expander

PERIODICAL: Pribery i tekhnika eksperimenta, no.1, 1963, 186-188

TEXT: Expanders used for liquefaction of helium need satisfactory sealing between piston and cylinder at very low temperatures. Early designs by Kapitsa used sealing by hydraulic resistance between piston and cylinder with a clearance too small for easy manufacture. Recently, the design of expanders has been improved, in particular by using a textolite (synthetic resin impregnated cloth) cylinder where the clearance to the piston can be made about 10μ when using ordinary crank reciprocation, so that the processes of expansion and exhaust are of equal duration. The cylinder in the sketch is of bronze. The piston has a steel core carrying the textolite piston liner axially compressed and fixed by a nut. The inner surface of the bronze cylinder is chromium plated to a thickness of 5 to 10μ . The clearance between piston and cylinder under operating conditions should be about 10μ the corresponding figure at room temperature being 1.3 to 1.4×10^{-5} mm/mm of diameter. Dimensional changes in
Card 1/3

A textolite piston ...

S/120/63/000/001/058/072
E194/E455

textolite with temperature depend on the method of manufacture, the quality of the cloth and the orientation of the sheet relative to the cloth. Accordingly, the temperature deformation on the particular specimen is measured before the piston liner is made up. The water absorption of textolite is also high and must be allowed for in making the liners. Before final machining, the liner should be vacuum-dried in a furnace; no cutting fluid should be used in machining the textolite and, after machining and until installation in the expander, the piston should be kept in a desiccator or in an atmosphere of completely dry gas; after assembling the expander it is carefully dried by blowing dry gas. Precautions must also be taken to avoid moistening in service. Expanders of this construction have an adiabatic efficiency of over 80%, so that friction between piston and cylinder is small. The construction permits the use of small working clearances without risk of jamming. Leakage of gas through the clearance is about 5 to 8% of the quantity treated. The life of the cylinders is about 1000 hours operation, when the piston is changed. Similar sealing arrangements may also be used in other

Card 2/3

A textolite piston ...

S/120/63/000/001/058/072
E194/E455

low-temperature devices, for example the expansion mechanism of
bubble chambers and in pumps for liquid cooling agents. There
are 3 figures.

ASSOCIATION: Institut fizicheskikh problem AN SSSR
(Institute of Physical Problems AS USSR)

SUBMITTED: March 13, 1962

Card 3/3

ACCESSION NO: AF3001618

5/0030/63/000/005/0062/0072

AUTHOR: Smilov, I. E. (Candidate of technical sciences)

TITLE: Helium liquefaction by compressed-gas engines

SOURCE: AN SSSR. Voenik, no. 5, 1963, 68-72

TOPIC TAGS: helium liquefaction, gas-expansion engines

ABSTRACT: The Institut fizicheskikh problem im. S. I. Vavilova (Institute of Physical Problems) has developed a new type of highly efficient (adiabatic efficiency, 66%) engine, driven by compressed gas, for the expansion of helium. The engine was developed in connection with the technical application of low-temperature effects that can be realized only by means of liquid helium, such as obtaining high vacuum (10 sup -8 mm Hg) in large volumes, utilizing superconductive solenoids for generation of strong magnetic fields, employing superconductors to obtain uhf resonators with a high Q-factor, and utilizing superconductive elements in computers (cryotrons). The high efficiency of the engine is due to the application

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ACCESSION NR: AP3001618

of plastic coatings on the pistons, which allow the clearance between the piston and cylinder to be reduced to 5 microns. The engine can operate for long periods at high efficiency without significant wear of the piston coating. The Institute has built two helium liquefiers in which the expansion engines are assembled in a two-engine cascade cycle. One liquefier has a capacity of 4-5 l/hr, the other about 30 l/hr. The liquefiers consist of a Dewar casing in which a high vacuum is created, heat exchangers, the two engines for helium expansion, and a collector for liquid helium. The machine liquefies up to 25 liters He/hr and utilizes liquid nitrogen only for absorptive purification of technical helium, consuming approximately 3 l/hr. To liquefy one liter of helium, power of 2 kw/hr is required. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 000

DATE ACQ: 21Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 000

OTHER: 000

Card 2/2

DANILOV, I.B., kand. tekhn. nauk

Efficiency of the cycles used for the liquefaction of helium.

Khim. mashinostr. no. 2:5-9 Mr-Apr '64.

(MIRA 17:4)

L 21110-65 EPF(c)/EPF(n)-2/EPR/EWT(m)/EWP(b)/EWP(t) Pr-4/Ps-4/Pu-4 IJP(c)
 ACCESSION NR: AP5002163 JD 8/0120/64/000/006/0149/0150

AUTHOR: Anashkin, O. P.; Danilov, I. B.; Krivenko, V. G.

TITLE: Helium Dewar flask without nitrogen cooling

SOURCE: Pribery i tekhnika eksperimenta, no. 6, 1964, 149-150

TOPIC TAGS: helium, Dewar flask

ABSTRACT: A 25-L Dewar flask without nitrogen cooling for storage and transportation of helium has been designed at the Institute of Physical Problems. The flask (see Fig. 1 of the Enclosure) consists of container 1 surrounded with double wall copper shield 2 brazed to container neck 3 made of stainless tube. Copper pipe 4 is brazed on the outside surface of the shield. The ends 5 and 6 of the pipe are connected to the neck. By manipulating piston 10, a stream of cold gas can be directed through the coil pipe to speed up the initial cooling of the insulation and shield, which takes about two days after filling the flask with helium. Shield insulation 7 is made of alternate layers of VET glass paper 0.12mm thick and aluminum foil. The space between housing 8 and the container is evacuated to a

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ACCESSION NR: AP5002163

pressure of less than 10^{-4} mmHg. Activated carbon 9 is used to absorb gases liberated from the container walls and insulation. In tests, the insulated shield had a temperature of 96K, the total heat flow to the shield was about 0.31w, and the evaporation loss was 2.8%/day. A 100-2 flask with identical insulation would have an estimated evaporation loss of max 1.5%/day, which makes such flasks fully competitive with nitrogen-cooled flasks. Orig. art. has: 1 figure.

ASSOCIATION: Institut fizicheskikh problem AN SSSR (Institute of Physical Problems, AN SSSR)

SUBMITTED: 12Jul63

ENCL: 01

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

ATD PRESS: 3164

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ACCESSION NR: AP5002163

ENCLOSURE: 01

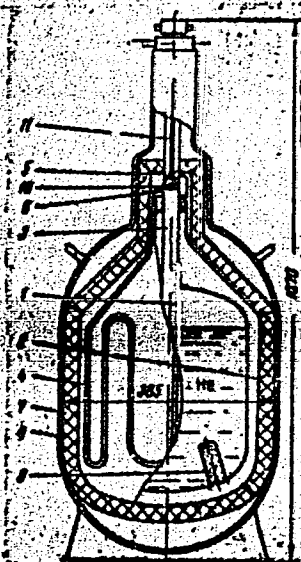


Fig. 1. Dewar flask

End 3/3

AUTHOR: Danilov, I.D

SOV-5-58-9-23/36

TITLE: Problems of Increasing the Economic Effectiveness of Capital Investments (Problemy povysheniya ekonomicheskoy effektivnosti kapital'nykh vlozheniy)

PERIODICAL: Vestnik vysshey shkoly, 1958, Nr 9, pp 69-70 (USSR)

ABSTRACT: The scientific personnel of the chairs of construction of the Moskovskiy inzhenerno-ekonomicheskoy institut imeni S. Ordzhonikidze (Moscow Engineering-Economical Institute imeni S. Ordzhonikidze) have completed important research in the field of approved fundamental constructions and organization of construction output. The purpose was to expose the huge reserves in the building trade. In February 1958, the Institute in cooperation with the Department of Economics of the State Committee on Building, USSR Council of Ministers, the Scientific-Research Institute of Economy in Construction, the USSR Academy of Construction and Architecture and the USSR Scientific-Technical Society of the Building Industry convened a conference on the economic effectiveness of capital investments. The conference was attended by over 900 persons. Representatives of 98 construction and 82 designing organizations, of 44 sovnarkhozes, 34 vuzes, 2 technical schools,

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SOV-3-58-9-23/36

Problems of Increasing the Economic Effectiveness of Capital Investments

and of 51 scientific-research institutes were present. Questions of economy in construction were discussed in 3 sections. S.Z. Ginzburg, Deputy-Chairman of the State Committee on Building, emphasized in his opening speech that every per cent of decrease in the net cost of building means a saving of over 1.2 billion rubles. A.A. Etmekzhiyan, Deputy Chief of "Glavmosstroy" told of the great economical advantages of large territorial construction organizations. D.N. Mamleyev, Director of the Trust "Cherepovetsmetallurgstroy" reported on the experience of the builders of the Cherepovetskiy metallurgicheskiy zavod (Cherepovets Metallurgical Plant). Docent A.V. Yelkin read a report,

prepared by the personnel of the Chair of Constructions and Design of the Moscow Engineering-Economics Institute under the supervision of Professor L.I. Onishchik, dealing with "Technical and Economical Effectiveness in Standard

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SOV-3-58-11-23/36

Problems of Increasing the Economic Effectiveness of Capital Investments

Housing Designs". The conference submitted a number of
recommendations.

Card 3/3

DANILOV, I.D.; MAKEDONOV, A.V.; DEMBSKAYA, V.I.

Concretions found in a stratum of grey boulder loams of the Vorkuta region. Dokl. AN SSSR. 144 no.6:1351-1354 Je '62. (MIRA 15:6)

1. Predstavleno akad. N.M.Strakhovym.
(Vorkuta region--Concretions)

DANILOV, I.D.

Pleistocene deposits in the eastern part of Bol'shezemel'skaya
Tundra and the conditions of their formation. Izv. AN SSSR.
Ser.geog. no.6:74-80 N-D '62. (MIRA 15:12)

1. Moskovskiy gosudarstvennyy universitet.
(Bol'shezemel'skaya Tundra—Geology, Stratigraphie)

DANILOV, I.D.

Relief and the Quaternary sediments in the southwestern slope of
the Pay-Khoy. Vest. Mosk. un. Ser. 5: Geog. 17 no.6:56-62 N-D
'62. (MIRA 16:1)

1. Katedra geografii polyarnykh stran glyatsiologii Moskovskogo
universiteta.

(Pay-Khoy--Geology, Stratigraphic)

DANILOV, I.D.

Genesis of Pleistocene sediments in the eastern part of the
Bol'shezemel'skaya Tundra. Inform. sbor. NIIGA no.31:46-53 '62.
(MIRA 16:12)

DANILOV, I.D.

Special lithogenesis features of morainlike Pleistocene
deposits in the eastern part of Bol'shezemel'skaya Tundra.
Izv. AN SSSR. Ser. geog. no. 6: 70-75. N-D '63.

(MIRA 17:1)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.

AUTHOR: Danilov, I.N.

65-1-10/14

TITLE: On the Problem of Methods of Evaluating the Operational Properties of Lubricating Oils (K voprosu o metodakh otsenki ekspluatatsionnykh svoystv motornykh masel)

PERIODICAL: Khimiya i Tekhnologiya Topliva i Masel, 1957, No.7, pp. 55 - 57 (USSR)

ABSTRACT: These are remarks on the paper of V.F. Filippov, published in Khimiya i Tekhnologiya Topliva i Masel, 1956, No.9. The author agrees with the views expressed in Filippov's paper, discusses main stages in testing oils and points out that in 1953, the Ministry of Petroleum Industry (Ministerstvo neftyanoy promyshlennosti SSSR) called a conference on the subject, but as yet no action has been taken. Moreover, some of the testing apparatus used is not at present manufactured. It is proposed to organise a group of experts at Gostekhnika, who should be charged with: 1) establishing types of tests of oils; 2) designing or organising the design of equipment for testing oils; 3) controlling the production and finalising prototypes of the testing equipment, and 4) developing methods of testing oils. There are 3 Russian references.

ASSOCIATION: BashNII NP

AVAILABLE: Library of Congress
Card 1/1

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77543
SOV/65-60-2-9/15

AUTHORS: Danilov, I. N., Murzabulatov, Kh. A.

TITLE: The Effect of Gas Cushion on the Thermal Stability of Fuel TS-1

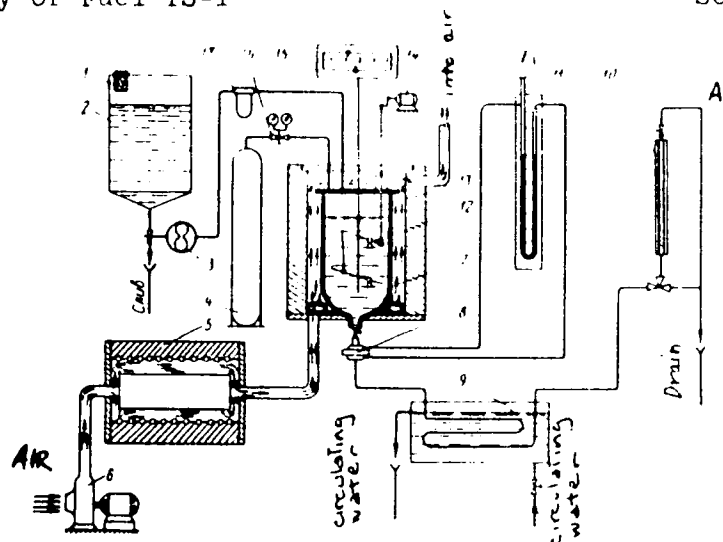
PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No. 1, pp 44-46 (USSR)

ABSTRACT: The effect of gas medium on the thermal stability of jet fuels used for supersonic flights was studied on special apparatus, shown in Fig. 1. The thermal stability of the fuel was determined by the duration, 600-minutes maximum of the experiment and by the pressure drop (340 mm maximum) on filter. The latter was made of nickel screen with 1,000 openings per 1 cm^2 . The results of the experiment are shown in Table A.

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The Effect of Gas Cushion on the Thermal
Stability of Fuel TS-1

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Card 2/8

Fig. 1. See Card 3/8 for Caption.

The Effect of Gas Cushion on the Thermal
Stability of Fuel TS-1

77-44
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See Card 2/8 for Fig. 1.

Fig. 1. Schematic diagram of the apparatus used for determination of the thermal stability of fuel of type TS-1. (1) Filter for coarse filtering; (2) fuel tank; (3) pump; (4) gas cylinder; (5) heating furnace; (6) ventilator; (7) heat exchanger; (8) experimental filter; (9) cooler; (10) rotameter; (11) differential manometer DT-10; (12) stirrer; (13) thermocouple; (14) electric motor; (15) millivoltmeter MRShenPr-94; (16) pressure reduction valve; (17) preliminary filter.

Card 3/8

The Effect of Gas Cushion on the Thermal
Stability of Fuel TS-1

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Key to Table A: (A) Material in contact with fuel;
(B) temperature of fuel, °C; (C) Duration of ex-
periment, minutes; (D) Increase drop on filter,
mm of mercury column; (1) Air; (2) Nitrogen (with
3.5% O₂); (3) Air; (4) Nitrogen (with 3.5% O₂); (5)
Air; (6) Nitrogen (with 4.2% O₂); (7) Fuel vapors.

(A)	(B)	(C)	(D)
1.	100	600	240
2.	100	600	27
3.	150	275	360
4.	150	600	74
5.	200	95	340
6.	200	600	121
7.	200	600	38

Card 4/8

The Effect of the Stability of the

Stability of the

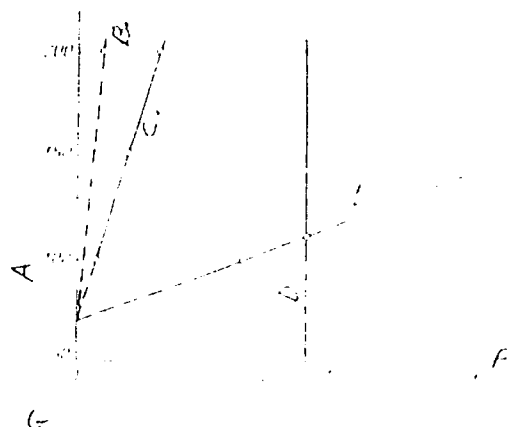


Diagram illustrating the stability of the

DANILOV, I.N.; MURZABULATOV, Kh.A.

Factors affecting the thermal stability of fuels for ram jet engines.
Trudy Bash NTINP no.5:238-250 '62. (MIRA 17:10)